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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/800,094	03/05/2001	Geoffrey B. Rhoads	P0324	3256

23735 7590 07/27/2004

DIGIMARC CORPORATION
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TUALATIN, OR 97062

EXAMINER	
ABDI, KAMBIZ	

ART UNIT	PAPER NUMBER
3621	

DATE MAILED: 07/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/800,094	RHOADS ET AL.
	Examiner	Art Unit
	Kambiz Abdi	3621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The prior office action is incorporated herein by reference. In particular, the observations with respect to claim language, and response to previously presented arguments.

- Claims 1-3 are pending.

Response to Arguments

2. Applicant's arguments filed 30 April 2004 have been fully considered but they are not persuasive additionally applicant's arguments with respect to claims 1-3 have been considered but are moot in view of the new ground(s) of rejection.

3. Also examiner withdraws the rejection under 35 USC § 112 2nd paragraph of claim 3 in view of explanation provided by the applicant in the remarks section of the amendment.

Claim Rejections - 35 USC § 101

4. Examiner would like to set out the interpretation of the claims under the 101 statuary rejection to clarify the understanding of the examiner of the claim. It is understood by studying the applicant's specification that the "digital token money" of independent claim 1represents virtual money that is used and transferred within a computer system as it is defined within the specification. Therefore the examiner takes note that the claim being within the statuary limitation.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S Patent No. 5,845,260 to Hiroaki Nakano et al. in view "Small Change, Are Micropayments Worth Trying?" By Russ Jones, Web Techniques, August 1998.

6. As per claim 1, Nakano clearly discloses a method comprising:

- Issuing a periodic allowance to a juvenile, said allowance comprising an allotment of digital money tokens (electronic account for spending on-line money)(See Nakano abstract, figure 1-2 and 6, column 6, lines 31-40 and 48-51and column 7, lines 18-23); and
- Charging a parent of said juvenile for said allowance (See figure 6, Nakano column 4, lines 34-41 and column 6, lines 31-40).

What Nakano is clear about is the specifics of the usage of token money in the system even though it is clear that the transaction are taking place in a network such as the internet. However, Jones clearly teaches the method of use and system for utilization of tokens in a micro-payment environment (See Jones page 51, paragraph IV, lines 7-14, paragraph X, lines 1-8). Therefore, it would have been obvious to one having ordinary skill in the art at the time the current invention was made to modify the Nakano system to integrate tokens within the online purchase environment for their ease of use, portability, and wide spread use as well as low over head cost for small purchases online without jeopardizing security and double spending.

3. As per claim 2, Nakano and Jones clearly disclose all the limitations of claim 1, further; Nakano discloses the spending at least some of said digital money tokens as compensation for music delivered to the juvenile over an electronic network (video on-demand such as music videos over any network such as cable, TV or on-line)(See Nakano figure 3, column 3, lines 11-20). Also Jones clearly teaches the music or audio streaming purchase via a network (RealAudio streaming)(See Jones page 52, paragraph III, Lines 2-10).

4. Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S Patent No. 5,845,260 to Hiroaki Nakano et al. in view of U.S. Patent No. 6,341,273 to Robert J. Briscoe and Small Change, By Russ Jones, Web Techniques, August 1998.

5. As per claim 3, Nakano clearly disclose all the limitations of claim 1, further;

What Nakano is not explicit on is each of the digital money token comprises a pseudo-random number. Although, Nakano teaches all of the elements claimed with the exception of being explicit on the type of electronic funds that is the specifics of the token and how usage of pseudo-random number used to generate tokens. However, Briscoe clearly teaches the roll of pseudo-random number in a micro-payment system (See Briscoe column 1, lines 24-31). The reason of using pseudo-random number token generation in a micro-payment system is the relative ease of use universality of the knowledge and cost to implement in the environment that not need to be highly secure transaction system when the value of the monetary funds are very small such as pennies. Therefore, it would have been obvious to one having ordinary skill in the art at the time the current invention was made to modify the Nakano system to integrate pseudo-random tokens generation within it to speed up the process and save money in a very low value transactions in addition to being secure and able to use this method to identify and authentic the origin of the token value as well.

6. Examiner has pointed out particular references contained in the prior arts of record in the body of this action for the convenience of the applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant, in preparing the response, to consider fully the entire references as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior arts or disclosed by the examiner.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kambiz Abdi whose telephone number is (703) 305-3364. The examiner can normally be reached on 9:30 AM to 5:00 PM.

8. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James P. Trammell can be reached on (703) 305-9768. Any inquiry of a general nature or relating to the

status of this application or proceeding should be directed to the Receptionist whose telephone number is (703) 308-1113.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

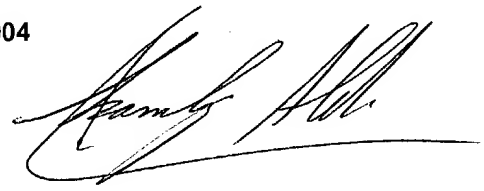
(703) 872-9306 [Official communications; including After Final communications labeled "Box AF"]

(703) 746-7749 [Informal/Draft communications, labeled "PROPOSED" or "DRAFT"]

Hand delivered responses should be brought to:

Crystal Park 5, 2451 Crystal Drive
7th floor receptionist, Arlington, VA, 22202

Abdi/K
July 22, 2004
74065



Small Change

Are Micropayments Worth Trying? A Look at Digital's MilliCent System.

BY RUSS JONES

Many sites on the Internet would like to sell online content and services, as well as reward users for reading certain content or taking certain actions. In many cases, these sites could benefit from the ability to handle small change instead of the larger dollar amounts typical of most online orders today. This ability to easily exchange small amounts between servers and clients is called microcommerce. Microcommerce is a new two-way transaction technology that shows much promise, but is still experimental. This article will help you understand how microcommerce systems work, and how to set up and test such a system on your Web site using the MilliCent system.

Microtransactions on the Web

Why introduce yet another type of financial transaction when credit and debit cards are so ingrained into everyday life? While credit cards are quite suitable for purchasing large-ticket items, the "per transaction" fees that vendors must pay make them unprofitable for selling goods under $10. Off-Net authorization delays and a general loss of anonymity further compound the problem. Moreover, because credit cards are so closely tied to real money, they're not suitable for promotional incentives, rebates, and coupons that are Web-site specific.

With these shortcomings in mind, microcommerce solutions are cost-effective systems that use electronic money, or e-money, to represent units of value. These systems can scale downward to support transactions as small as a quarter, a dime, or even a fraction of a penny. As we'll discuss, these systems can also be used to keep track of any kind of private currency, which is a useful way of looking at loyalty programs such as frequent-flyer miles.

In general, the user of one of these systems must go through the following steps to conduct a transaction:

1. Sign up with a financial intermediary or broker.
2. Add a software wallet to the Web browser.
3. Use an online credit/debit card to fill a wallet with $20 or more of e-money.
4. Exchange e-money from the wallet with online merchants to access "pay per use" information or services.

A wallet can also be used to hold e-money that merchants give to the customer.

Notational and Token Models

Although similar in usage, micropayment systems are technically based on one of two different architectural models: the notational model or the token model.

Notational systems manage value centrally. Think of your checking account as a real-world example of the notational model. In this case, the user's wallet acts like a checkbook and is used to authorize the financial intermediary to pass e-money value to the merchant's account. This is the model used by both the CyberCoin system from CyberCash and the GlobeID system from GlobeID Software.

Within the notational model, tampering is prevented through the central management of value—just as simply adding a zero to the balance in your checkbook doesn't really change your balance with the bank. On the other hand, the price of this approach is performance and scaleability, as every microtransaction on the Web requires a centralized debit to the customer's e-money account and a corresponding credit to the merchant's account.

Token systems manage value locally. Think of the cash in your pocket as a real-world example of the token model. Instead of zinc and copper coins, the actual value is held in ones and zeros inside a handful of digital tokens. This is the model that's used by the eCash system from DigiCash and by the MilliCent system from Digital Equipment.

In this model, tokens representing values are cryptographically sealed and passed back and forth between customers and merchants on the Web. The conver-

Small Change

sion of real money to tokens and back again is typically handled outside the transaction so as to mitigate the performance implications of real-world monetary systems. Although the token approach has many advantages, because the tokens carry the actual value, like cash, if they are destroyed or lost, the value is lost.

Microcommerce Evolution

DigiCash pioneered casual commerce on the Internet with the introduction of its eCash system in 1995. CyberCash responded in 1996 with its CyberCoin system. Both of these systems are today considered micropayment systems, as they support selling content to customers by the click for less than $1. Micropayments can be applied to any file or media type that can be exported from the Web site. This includes things like CGI query results from a database search, Acrobat documents, RealAudio streams, binary files, and VRML models, as well as static HTML documents.

Although well suited for low-value cash transactions from buyer to seller, micropayment systems are beginning to evolve to become microcommerce systems. The more experimental microcommerce systems offer potential for more innovative applications: The MilliCent microcommerce system, for example, is designed with as much emphasis on sellers rewarding buyers as on buyers paying sellers.

With MilliCent, two-way transactions can be based on monetary currency, loyalty points, or a vendor-specific private currency. The use of private currency means that a Web site can create and hand out privately branded tokens to be used in place of actual cash. Such tokens might be used as a promotional incentive or as a rebate mechanism to reward the customer for filling out a survey, joining a distribution list, or participating in a discussion forum.

How MilliCent Works

MilliCent is a pay-ahead electronic token system based on the use of brokers and scrip. Brokers act as financial intermediaries, simplifying the system for users and merchants (see Figure 1). MilliCent uses electronic tokens, called scrip, for purchases. In MilliCent, merchants license brokers to sell the merchant's scrip to consumers. Consumers buy generic scrip from a broker, keep it in an electronic wallet, and exchange it with the broker for the merchant's scrip when needed. Although this sounds complicated, the MilliCent wallet masks the underlying process from the user.

With scrip, consumers do not have to share sensitive financial or personal information with online merchants to buy

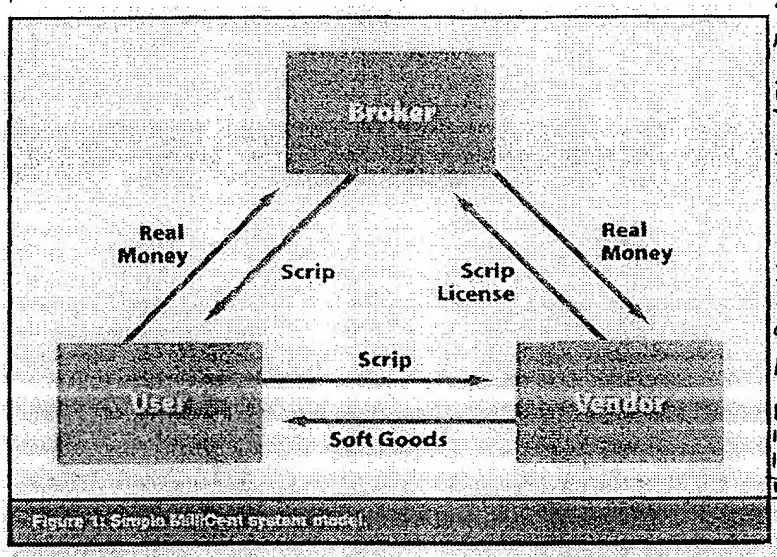


Figure 1: Simple MilliCent system model.

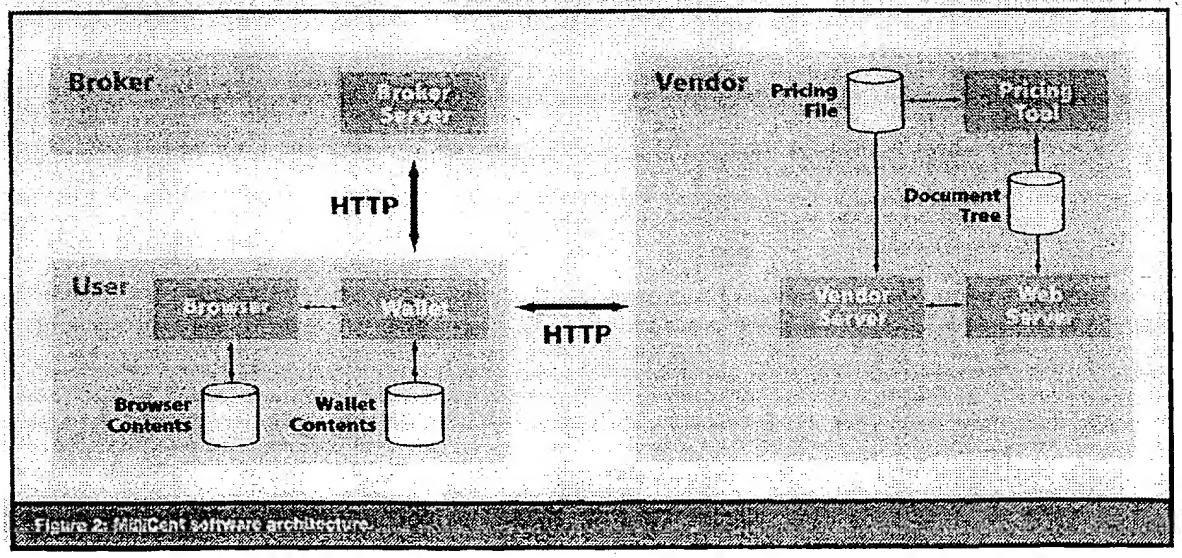


Figure 2: MilliCent software architecture.

goods. In addition, consumers don't have to worry about maintaining accounts or passwords with hundreds of vendors. Merchants, likewise, don't need to worry about creating, maintaining, and billing millions of customer accounts. Instead they strike a relationship with a broker. The broker handles selling the merchant's scrip to users, and passes the money—minus a small transaction fee—on to the merchant at regular intervals. Essentially, the merchant just checks for the appropriate tokens, as users access for-pay content or services.

Through shared secrets and cryptography, MilliCent assures system users that the scrip has not been tampered with, stolen, or previously spent. As part of the relationship with the broker, the merchant shares a secret. An HMAC MD5 message digest function is used to cryptographically seal each piece of scrip with a 128-bit stamp. This prevents the customer, or any intervening party, from changing the value or any other property of a piece of scrip. When a piece of scrip is being used, a second HMAC MD5 operation is used to bind the scrip to a specific HTTP request. This prevents the wily hacker from redirecting the URL request in flight on the Internet.

Merchant-specific serial numbers are embedded into each piece of scrip. Each merchant keeps an in-memory serial number array denoting which tokens have been previously spent. As legitimate pieces of scrip are used to purchase goods, the corresponding serial numbers are marked in memory as spent. The serial number array is written to disk at regular intervals. This allows the merchant to detect double spending without a database lookup, additional round-trip transactions back to the user, or any centralized broker validation.

Merchant-specific scrip, together with message-digest cryptography, creates a microcommerce transaction environment that can process hundreds of transactions per second on a typical low-cost commodity server. This high throughput rate is critical for Web sites pricing content in pennies or generating and redeeming loyalty points with potentially every HTTP transaction to the site.

The MilliCent software system is composed of three main software components—the wallet, the merchant or vendor server, and the broker server (see Figure 2).

The wallet, vendor server, and broker server speak the MilliCent protocol, which is implemented as an extension to the HTTP protocol. It does not interfere with normal HTTP transaction processing or with the standard interaction between the Web browser and the Web server.

To become a vendor and exchange MilliCent scrip, a content or service provider must run a vendor server. The MilliCent vendor server is implemented as a server-side proxy server that intercepts URL requests headed for the Web server. The vendor server handles the payment processing if needed, and forwards the request on to a standard Web server. This approach makes the vendor server independent of the existing Web-server software on the site.

The vendor server is the server-side equivalent of the MilliCent wallet. With a single directive you can set pricing on a server-wide basis, constrain it to a given directory, or apply it to a specific URL. A pricing tool is available to help merchants assign microcommerce attributes on the Web-site document tree.

When started, the vendor server loads a price configuration file that describes the payment attributes associated with each URL. Like the wallet, the vendor server interacts with each HTTP request to process and handle scrip embedded in the HTTP header. With each URL request, the vendor server extracts payment in the form of scrip. In addition to checking the scrip integrity, it maps the URL against the preloaded price file to determine how to handle each request. It also generates change in the form of scrip that is returned to the consumer with the requested content.

The vendor server can be configured in a number of different ways, depending on the workload of the Web site and how much Web content will be made available through MilliCent.

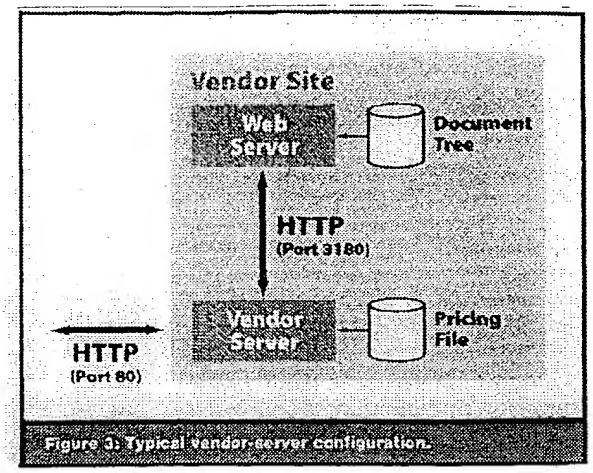


Figure 3: Typical vendor-server configuration.

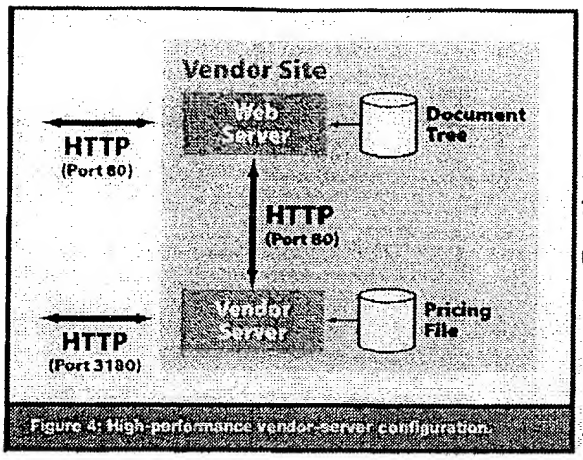


Figure 4: High-performance vendor-server configuration.

Typically the MilliCent vendor server is installed on the same system as the vendor's Web site and configured to act as a proxy for all Web-server requests (see Figure 3). In this configuration, the MilliCent vendor server handles all URL requests for both payment-required and free pages. For Web sites with less than a million hits per day, this is the right configuration: It requires no changes to the document tree structure or HTML beyond adding price tag icons to alert the customer that certain hyperlinks require payment.

In a more advanced configuration, you can install the MilliCent vendor server and your Web server side-by-side on the same system (see Figure 4). Through an alternative URL port number, you can direct all page requests requiring MilliCent processing to the vendor server. Using this technique, your Web server handles all non-MilliCent requests directly, and the vendor server handles only relevant pages. If the system processing load grows, the vendor server can be placed on another system, separate from your Web server.

Remember "Green Stamps?"

Bringing back the equivalent of Green Stamps may be the key to spurring the Internet economy. S&H Green Stamps go back to the 19th Century, but I remember my parents collecting them at gas stations in the 1960s. Green Stamps were distributed by a variety of merchants as an incentive to purchase. Users collected the stamps in books and could exchange them at redemption centers for merchandise. Today, frequent-flyer points are a similar kind of currency, although these loyalty programs are usually distributed and valued only by the issuing company itself.

Micropayment systems intended to exchange small dollar amounts, such as Digital's MilliCent, may end up being important for their ability to implement Green Stamps and other incentive programs as private currencies. In an Internet economy where the user's perception is that information and services are free, Green Stamps can be used to establish a two-way exchange of value. In other words, users give up something of value and get something back in return.

As an online publisher, I can't yet see implementing a micropayment system where users pay for content, no matter how small the cost per page. However, I could offer users incentives to do things that produce value for my site. For instance, I might reward users who spend more time on the site or who visit regularly. I might reward users who provide detailed demographic information. In effect, Green Stamps could be used to "share" advertising revenue with users. Seeing an ad equates to one stamp; clicking on an ad might be worth two, and visiting an advertiser's site might earn the user four stamps.

Merchants on the Web could also use Green Stamps. Some merchants have difficulty discounting products for sale online, afraid that they'll jeopardize existing retail channels. Green Stamps are a way to give the user something extra without actually offering the product at a lower price.

With a system like MilliCent, Green Stamps are a form of "scrip," or a currency that can be used in place of money. When visiting a scrip-enabled site, the user can receive as well as give scrip in exchange. Users can exchange scrip with each other. What's also interesting is that the user is responsible for the record-keeping (that is, collecting and holding on to their own scrip in their wallet); you don't need a central place to manage those transactions.

The scrip model can work for coupons, tickets, and quite a number of other things. When you visit one site, you might receive scrip that functions as a ticket for a future free visit to another site, or a coupon providing a discount at yet another site. This might turn an advertisement into a transaction.

Green Stamps might be reason enough for users to download an electronic wallet, especially if sites were going to put something of value in the wallet rather than just take something out. Green Stamps can help develop the social and technological basis for establishing value and enabling transactions.

—Dale Dougherty

Setting Up a Typical Vendor Server

Now that you understand how MilliCent works, the different software components, and the support configurations, let's walk through the steps you would take to add MilliCent to a hypothetical Web site called The Journal of Scientific Journals located at www.tjosj.com and running on port 80.

MilliCent is currently in experimental use by consumers and online merchants in an open, public trial on the Internet. Throughout the beta process consumers are freely given $10 to participate in the trial and to pay for experimental content on the World Wide Web. If you set up a merchant server, you can participate in this trial and get a better sense of how microcommerce works.

In this example, we'll sell articles from past issues for 3 cents a page while continuing to distribute the remainder of the content to consumers at no charge. As you follow the steps below, feel free to substitute host names, port numbers, and URLs as appropriate for your Web site. These instructions assume you host your own content from a Windows NT 4.0 server.

Step 1: Download the software. You can get the vendor server and pricing tool at no charge from the MilliCent QuickStart URL (see "Online").

Step 2: Install the software. During setup pay special attention to the Vendor Server Host Port and Vendor Server Host Name. If you enter your information incorrectly, you'll have to reinstall the vendor server later to correct the problem.

Step 3: Start the vendor server. The first time the vendor server starts you'll be asked to set and confirm the username and password. Once you do this, the main vendor control panel will appear onscreen.

Step 4: Using the MilliCent QuickStart URL, go to the MilliCent sample broker and register to have the sample broker distribute your vendor scrip. The registration process will guide you through scrip initialization.

Customizing and Testing

Before you can turn on the vendor server, you need to create a pricing file. Example 1 contains the pricing file used in this example to sell articles out of the archive for 3 cents a click. Save this file to disk with a .pri file extension. The vendor server matches any incoming URL request against this pricing data from top to bottom—the first match wins. In this example, inline images (*.gif or *.jpg) pattern match free, all HTML documents in /archive match 3 cents in U.S. currency (0.03 USD), and all other URL requests coming through the vendor server match free. Now that your pricing file is ready, you need to tell the vendor server to use it.

```
<PATH URL="*.jpg | *.gif">
<PRICE VALUE="free">
</PATH>
<PATH URL="/archive/*.html">
<PRICE VALUE="0.03 USD">
</PATH>
<PATH URL="*">
<PRICE VALUE="free">
</PATH>
```

Example 1: MilliCent price description language.

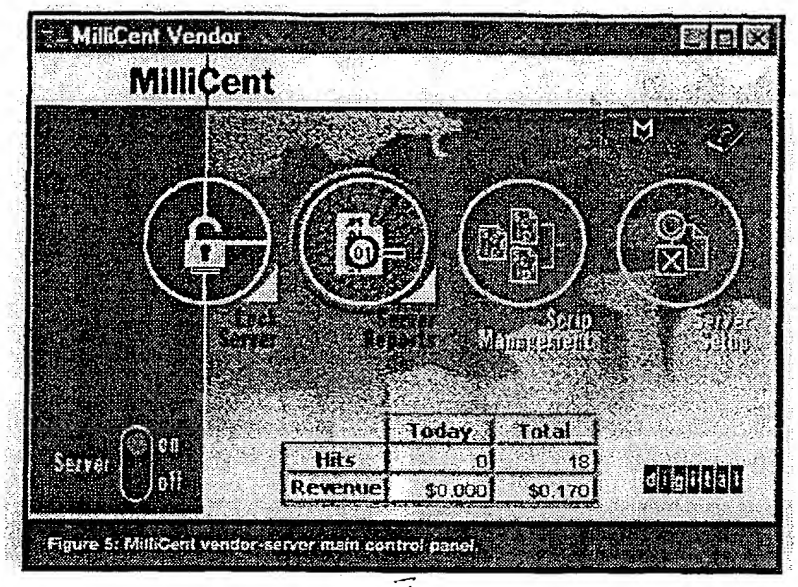


Figure 5: MilliCent vendor-server main control panel.

Bring up the vendor-server main control panel (see Figure 5) and click on Server Setup. From the Network tab, use the Browse function to locate the pricing file you just created.

To start the vendor server, click the On switch on the vendor-server main control panel. If the server doesn't start running, an error message will tell you whether the assigned port is already in use or the price file can't be opened. If the server does start running, you can now partially test the vendor server. In this example, the home page of the Web site can be accessed through the vendor server by retrieving www.tjosj.com:3180. If the home page comes up normally, the vendor server is running just fine and can actually proxy free pages back to the browser.

Once you are notified by email that the broker server is configured to sell your scrip, you can begin to fully test your vendor server. Staying with this example, you should be able to retrieve the entry page (www.tjosj.com:3180/archive) into the archive for 3 cents.

This will cause one of two things to happen. Either your MilliCent wallet will notify you that the page you requested costs 3 cents and ask you to authorize the purchase or—if you don't have the wallet configured with your browser—the vendor server will redirect your request to a page that describes downloading, configuring, and starting your wallet.

Structuring Your Document Tree To Sell Content

Once you can use your wallet to buy a page from your Web site, you can go about fully structuring your document tree to sell content. In this example, we have configured MilliCent to charge only for URLs that are accessed through the vendor server, running on port 3180, and appropriately priced in the pricing file.

In this example, your normal Web site continues to run from port 80 on www.tjosj.com. To redirect users into the archive, and charge them 3 cents per click, you would create a hyperlink from the home page that links to the archive entry page through the vendor server. Instead of linking to the archive with HTML that looks like this:

```
Please browse the <A HREF="/
archive/">archive</A> for
interesting articles from
previous issues.
```

You would use HTML that looks like this:

```
Please browse the <A HREF="
http://www.tjosj.com:3180/
archive/">archive</A> for
interesting articles from
previous issues.
```

By structuring your HTML this way, you are redirecting all requests from your normal server (running on port 80) through to the MilliCent vendor server running on port 3180.

Shrewd users might notice that if they manually remove the 3180 port identification from the URL request, they could directly access the /archive directory from your normal server. To prevent this, the final step is to block access to the /archive directory with basic authentication so that a username and password are required to access the directory. Only you know this username and password, and you can configure the vendor server to use it when accessing your Web site. To do this, go back to the vendor-server control panel, stop the vendor server if it's running, then click on Server Setup and you should see the Network tab. Down at the bottom of this panel you can enter a username and password. Click on Save, close the window, and then turn the vendor server back on.

The next step is to visually associate the price with the hyperlink. There is no right way, or even best way, to visually assign prices. A complete discussion of how to do this, and how to access a number of predefined price tags, is provided at the MilliCent QuickStart URL.

Final Notes

The Internet today is in the early stages of microcommerce adoption. The MilliCent architecture, tightly integrated into the World Wide Web, provides a flexible foundation to build interesting microcommerce applications. The CGI environment, used extensively to build Web applications, is an integral part of the MilliCent application development environment.

Webmasters can sell dynamic results from the execution of CGI scripts just as easily as they can price and sell static URLs. The MilliCent pattern-matching technique used to price URL requests works nicely with the GET method. The proactive participation of the MilliCent wallet in the HTTP transaction also means that application developers can test for the presence of the wallet and offer customized HTML pages to visitors. Such special offers will increasingly be used to derive microcommerce revenue from a transaction-oriented Web.

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Small change

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Abstract:

Many Web sites could benefit from the ability to handle small change instead of larger dollar amounts. This ability to easily exchange small amounts between servers and clients is called microcommerce. Microcommerce is a new 2-way transaction technology that shows much promise but is still experimental. How microcommerce systems work is discussed, as well as how to set up and test such a system on a Web site using the MilliCent system.